This document shows you how to use a Drobo iSCSI array with Veeam Backup & Replication version 6.5 in a VMware environment. Veeam provides fast disk-based backup and recovery of virtual machines (VMs), while Drobo provides an easy-to-use and scalable disk-based storage target. The combined solution provides reliable and affordable disk-based backup storage for your virtualized server environment. The benefit of this solution is the ability to have many different restore points on disk media instead of tape for faster backups and restores without the hassle of managing catalogs of tapes.

Topics

- Veeam basics

- Creating and mounting a Drobo volume

- Using Microsoft iSCSI Initiator to connect to VMware datastores

- Adding a new vCenter Server

- Creating a Backup Repository

- Creating a new Veeam Backup job

- Restoring virtual machines with Veeam Backup

- VeaamZIP

Direct SAN Access Mode: The Veeam server will use the connected iSCSI volumes to talk to the VMware datastores. This approach provides a much faster backup throughput

Veeam Backup Server

In order for Veeam to provide a faster Backup throughput, in Direct SAN Access mode VMware datastores are being accessed from the Veeam server using Microsoft iSCSI initiator

Backup Source

VMs

ESX/ESXi

VMFS Datastores

Drobo Backup Target

Once the Drobo iSCSI Volumes are mounted on the Veeam Server, they can be used as the target onto which all the Veeam backups will be stored. Notice that these volumes will show up as a block/raw device and formatted as NTFS volumes.

/vmfs/volumes/veeam-dst-id1/

/vmfs/volumes/veeam-dst-id2/

While using a VMFS datastore as the destination of your backups, is an option within Veeam, a local NTFS Volume to the Veeam server should be used instead.

What You Will Need

- Drobo iSCSI SAN
- Drobo Dashboard management software (most recent version)
- Enterprise-grade 7200RPM SATA disk drives or 2.5" SSD drives with carrier docks (recommended)
- Windows Server 2008 R2 (dedicated server recommended)
- Veeam Backup and Replication version 6.5

Veeam Basics

Veeam can be installed on a physical or virtual server. The advantage of installing on a physical server is that backup storage can be directly attached and deliver the best throughput, as well as attaching a tape library to the same physical server, should this still be required in addition to disk-based backup. Further, installing Veeam as a physical server offloads the CPU burden of the backups from the VMware cluster.

Veeam Backup & Replication version 6.5 provides:

- File-level recovery
- Start virtual machine from the backup
- Provide replication
- Built in deduplication and compression
- Allow users to restores their own files
- Backup recovery verification

Veeam Hardware Requirements

Veeam recommends dedicating a server to be used solely for Veeam backups. While a VM host can be the backup server, a physical host would tend to outperform a virtual host, because resources are not shared and there is no virtualization layer. Make the decision based on the amount of data to be backed up and features you might want to use in Veeam (for example, compression and deduplication).

Network Considerations

For Network mode backup and restore, Veeam uses LAN to receive and send data. Therefore, as a best practice, most IT administrators deploy two network interfaces. One interface is used for management (RDP to the server, AD traffic, DNS, and so on). The second interface is dedicated to back up and restore traffic. This results in the best possible backup-and-restore performance, as it will not overload the management network.

Creating and Mounting a Drobo Volume

NOTE: Do NOT install Drobo Dashboard on the Veeam server, but on a different host. Veeam requires the Microsoft Windows "diskpart automount" feature to be *disabled* when the backup mode is Direct SAN Access. However, Drobo Dashboard requires that this feature be *enabled*, so that volumes can be created, mounted, and formatted in Drobo Dashboard. Therefore it is recommended that Drobo Dashboard be installed on a host that is not the Veeam server.

STEP 1

Create one Drobo volume using Drobo Dashboard. *This volume will be the repository in which Veeam stores its backups.*

Leave the volume unmounted within the Drobo Dashboard.

NOTE: Take note of the **Target Name**, as you will need to know the last three characters of this string for future steps. Our volume here has ".id2" as the identifying characters.

STEP 2
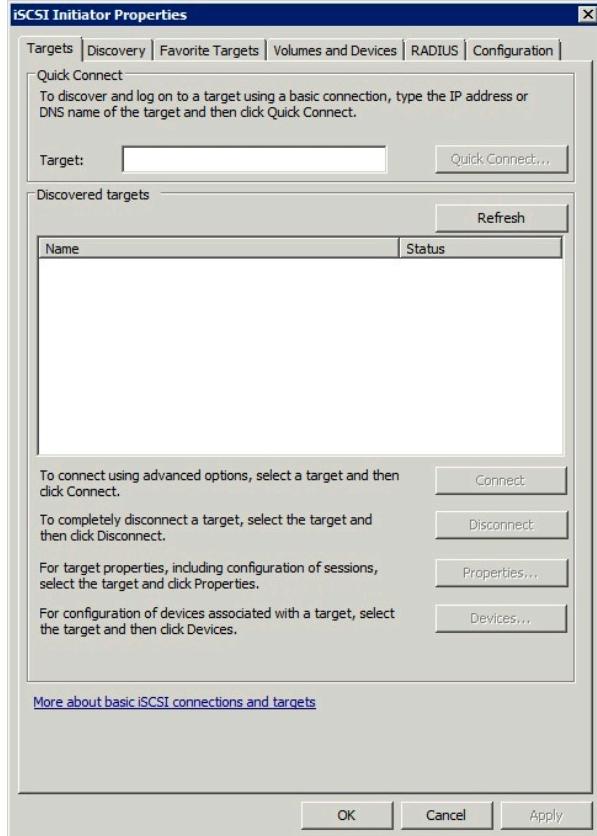
Mount these volumes manually using Microsoft iSCSI Initiator on the Veeam server. Open Microsoft iSCSI Initiator: **Start > Administrative Tools > iSCSI Initiator**

If you have not used Microsoft iSCSI Initiator before, you will notice that the list of volumes is empty.

Click the **Discovery** tab.

STEP 3

iSCSI Initiator Properties

Targets | Discovery | Favorite Targets | Volumes and Devices | RADIUS | Configuration

Target portals

The system will look for Targets on following portals:

Refresh

Address	Port	Adapter	IP address

To add a target portal, click Discover Portal.

Discover Portal...

To remove a target portal, select the address above and then click Remove.

Remove

iSNS servers

The system is registered on the following iSNS servers:

Refresh

Name

To add an iSNS server, click Add Server.

Add Server...

To remove an iSNS server, select the server above and then click Remove.

Remove

More about Discovery and iSNS

OK   Cancel   Apply

Discover Target Portal

Enter the IP address or DNS name and port number of the portal you want to add.

To change the default settings of the discovery of the target portal, click the Advanced button.

IP address or DNS name: Port: (Default is 3260.)

[   ]   [3260   ]

Advanced...   OK   Cancel

Click the **Discover Portal** button, add the IP address of the Drobo, and click **OK**.
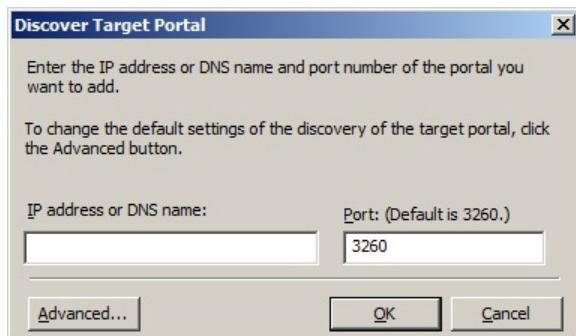
STEP 4
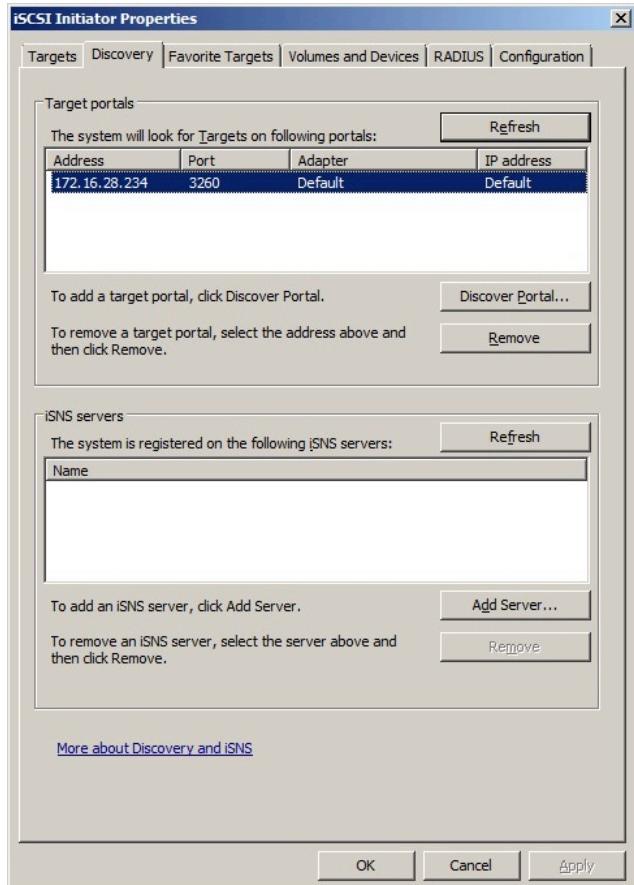
The address is now added in the Target portals list. Click the **Targets** tab.

STEP 5

iSCSI Initiator Properties

Targets | Discovery | Favorite Targets | Volumes and Devices | RADIUS | Configuration

Quick Connect

To discover and log on to a target using a basic connection, type the IP address or DNS name of the target and then click Quick Connect.

Target: [   ]   Quick Connect...

Discovered targets

Refresh

Name	Status	
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id10	Inactive	
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id11	Inactive	
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id16	Inactive	
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id2	Inactive	
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id3	Inactive	
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id4	Inactive	
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id5	Inactive	
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id6	Inactive	

To connect using advanced options, select a target and then click Connect.   **Connect**

To completely disconnect a target, select the target and then click Disconnect.   **Disconnect**

For target properties, including configuration of sessions, select the target and click Properties.   **Properties...**

For configuration of devices associated with a target, select the target and then click Devices.   **Devices...**

More about basic iSCSI connections and targets

OK   Cancel   Apply

Connect To Target

Target name:

iqn.2005-06.com.drobo:b800i.tdb1126b0038.id2

☑ Add this connection to the list of Favorite Targets.
This will make the system automatically attempt to restore the connection every time this computer restarts.

☐ Enable multi-path

Advanced...   OK   Cancel

Select the volume you wish to mount.

From our previous steps we created the volume "Veeam Backups" with the Target Name ending in *.id2*

Click **Connect**. In the pop-up dialog, and click **OK**.
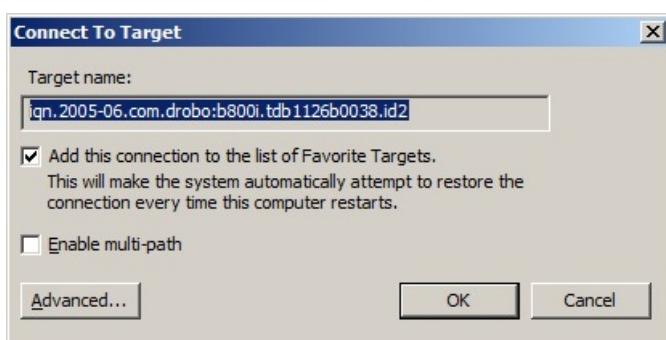
STEP 6
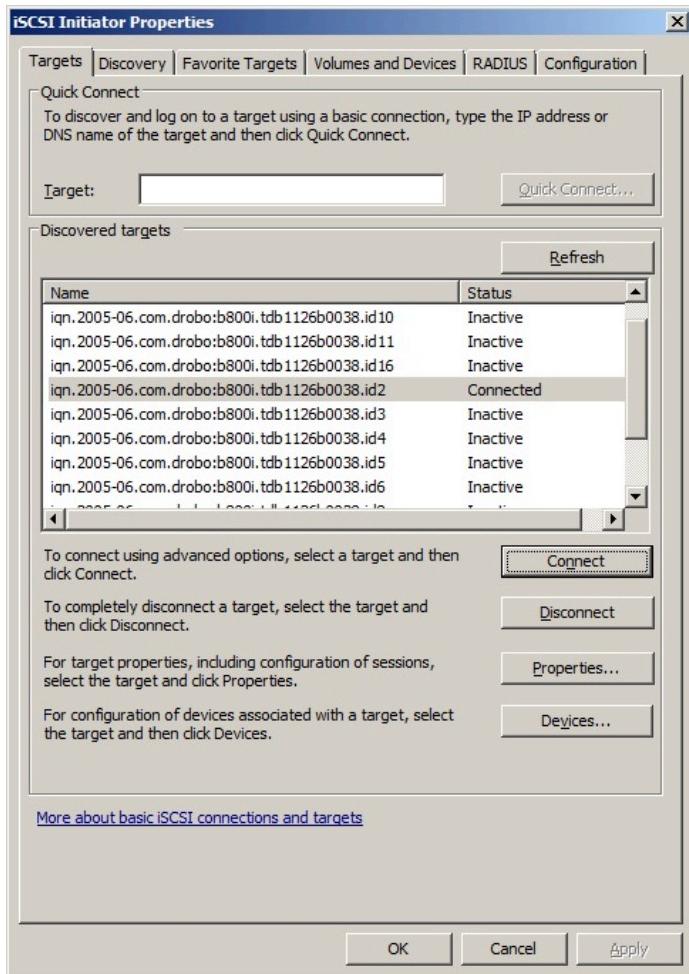
Once you have selected and connected the volumes you want to use, click **OK** to close Microsoft iSCSI Initiator.

STEP 7

Proceed with the following steps if the volume was not automatically mounted to the Veeam server. This step will require you to open Disk Management via Computer Management. Click to **Start > Administrative Tools > Computer Management**
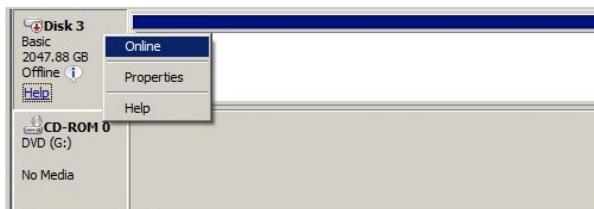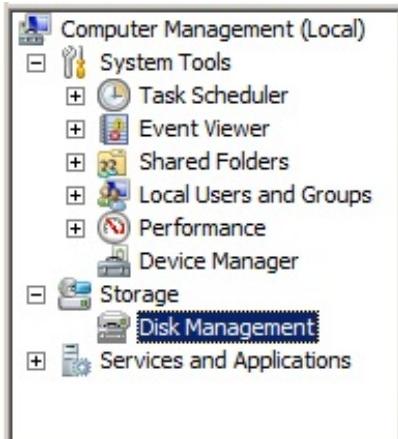
Go to **Disk Management** along the left navigation bar located under **Storage**.

You will now see the additional disk, which is the iSCSI volume you have just connected to.

If the volumes are not mounted, mount them and assign them a drive letter.

STEP 8
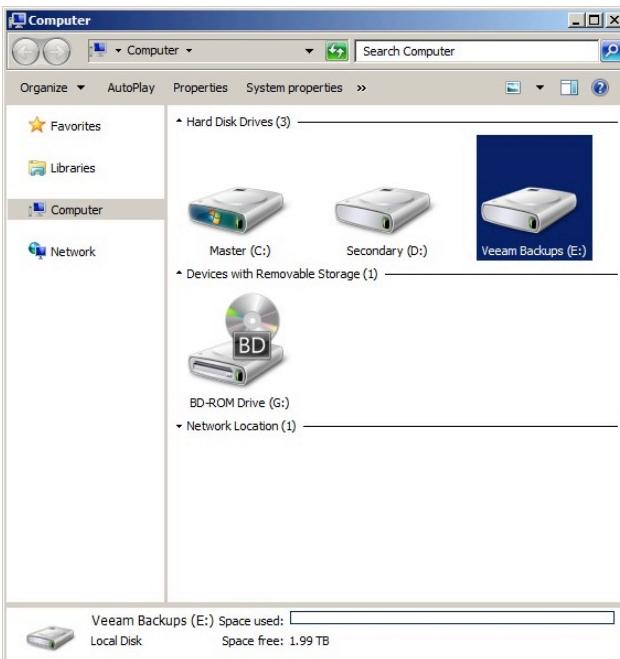
The volume will now appear as a local drive within Windows Explorer.

To learn about Drobo and iSCSI, visit: http://www.drobo.com/resources/iscsi.php

Using Microsoft iSCSI Initiator To Connect to VMware Datastores

As discussed previously, Microsoft iSCSI Initiator is used on the host where Veeam is installed to allow Veeam to:

- Connect but NOT mount the ESX/ESXi datastores on which the VMs reside
- Connect but NOT mount the ESX/ESXi datastores to which VMs can be backed up

NOTE: This step is very similar to the previous section, in which Microsoft iSCSI Initiator was used to connect to iSCSI volumes. However, because these volumes are formatted as VMFS, Windows does not show them in My Computer. They do, however, appear as volumes in Disk Management.

There is a potential risk that the VMFS volumes are re-signatured by Windows if you attempt to initialize one of these volumes and or assign it a drive letter. To prevent this from happening, Veeam recommends that the diskpart automount be disabled. This is not applicable if you are using Veeam Backup & Replication version 6.5, since it will automatically disable automount.

For more information, visit:
http://www.veeam.com/blog/using-the-iscsi-initiator-within-veeam-backup-replication-in-a-vm.html

STEP 1

To open Microsoft iSCSI Initiator, choose **Start > Administrative Tools > iSCSI Initiator**.

STEP 2

In the Discovery tab, click **Discover Portal**.

STEP 3

Enter the IP address of the array. Shortly thereafter a list of all the volumes that your backup server has access to appears the Targets tab.

STEP 4

iSCSI Initiator Properties

Targets | Discovery | Favorite Targets | Volumes and Devices | RADIUS | Configuration

Quick Connect

To discover and log on to a target using a basic connection, type the IP address or DNS name of the target and then click Quick Connect.

Target: [   ]   Quick Connect...

Discovered targets

Refresh

Name	Status
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id2	Connected
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id3	Inactive
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id4	Inactive
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id5	Inactive
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id6	Inactive
iqn.2005-06.com.drobo:b800i.tdb1126b0038.id8	Inactive
iqn.2005-06.com.drobo:b800i.tdb1126b0038.management	Connected
iqn.2005-06.com.drobo:b800i.tdb1126b0039.management	Connected

To connect using advanced options, select a target and then click Connect.   **Connect**

To completely disconnect a target, select the target and then click Disconnect.   **Disconnect**

For target properties, including configuration of sessions, select the target and click Properties.   **Properties...**

For configuration of devices associated with a target, select the target and then click Devices.   **Devices...**

More about basic iSCSI connections and targets

OK   Cancel   Apply

Select each target that you want to mount and click **Connect**.

Adding a New vCenter Server

Install Veeam and use the main console to configure and manage backup attributes such as schedules, retention, targets, deduplication, compression, and so on.

STEP 1
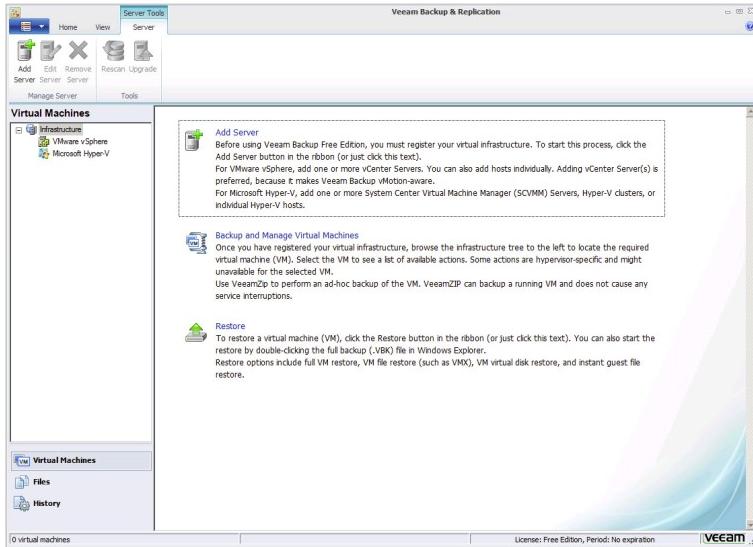
Launch Veeam and click **Add Server**.

Click on **VMware vSphere** to proceed.
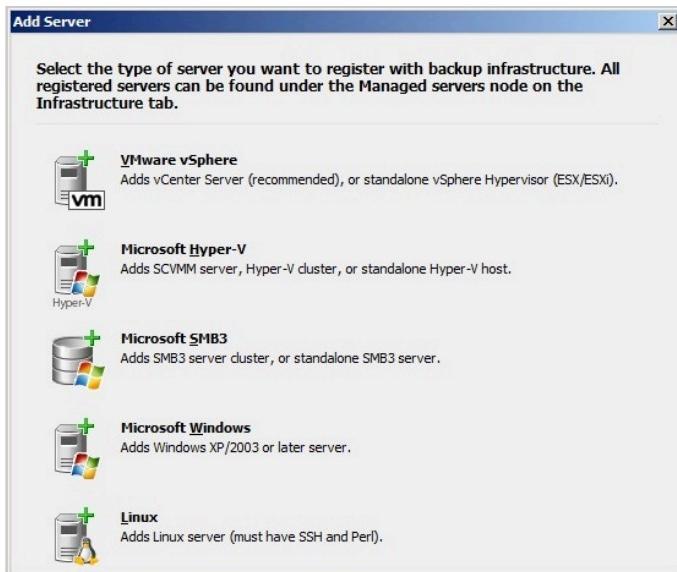
STEP 2
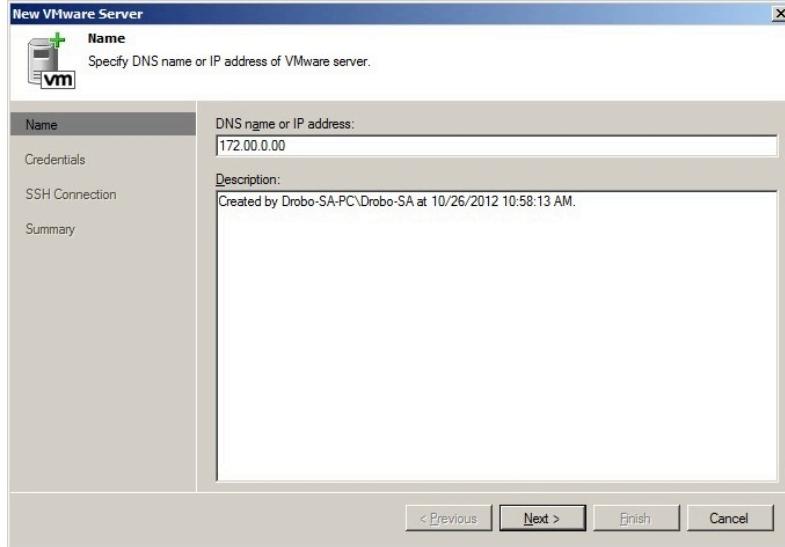
Enter the IP address of the server, whether you are adding a vCenter server or a single ESX/ESXi host.

STEP 3
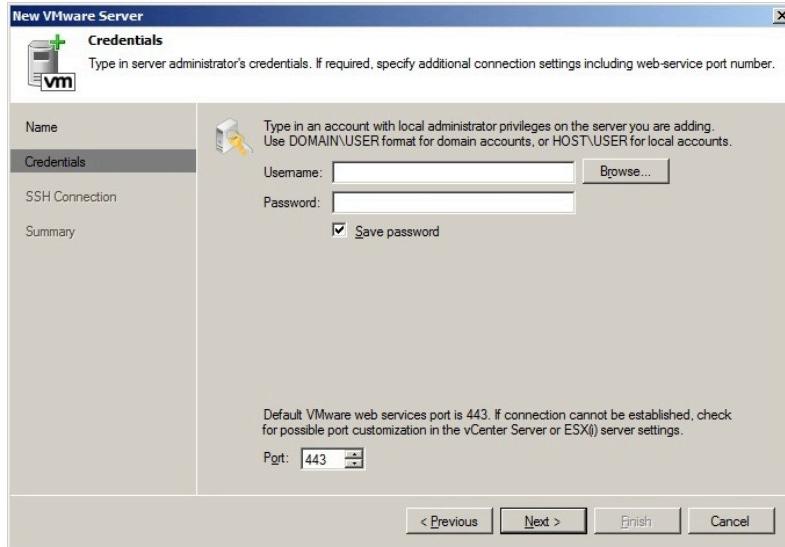
Provide server administrator credentials.

STEP 4
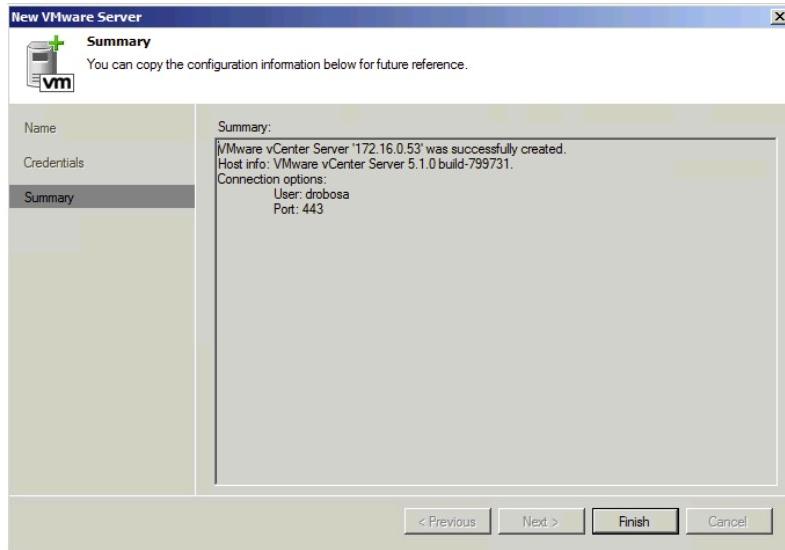
Click **Finish** to complete the Add Server wizard.

Creating a Backup Repository

A backup repository is a location used by Veeam Backup & Replication jobs to store backup files, copies of VMs, and metadata for replicated VMs. Technically, a backup repository is a folder on the backup storage. By default, Veeam will use a local path on the Veeam server. In the following steps, we will designate a Drobo volume to be the location path for all backups.
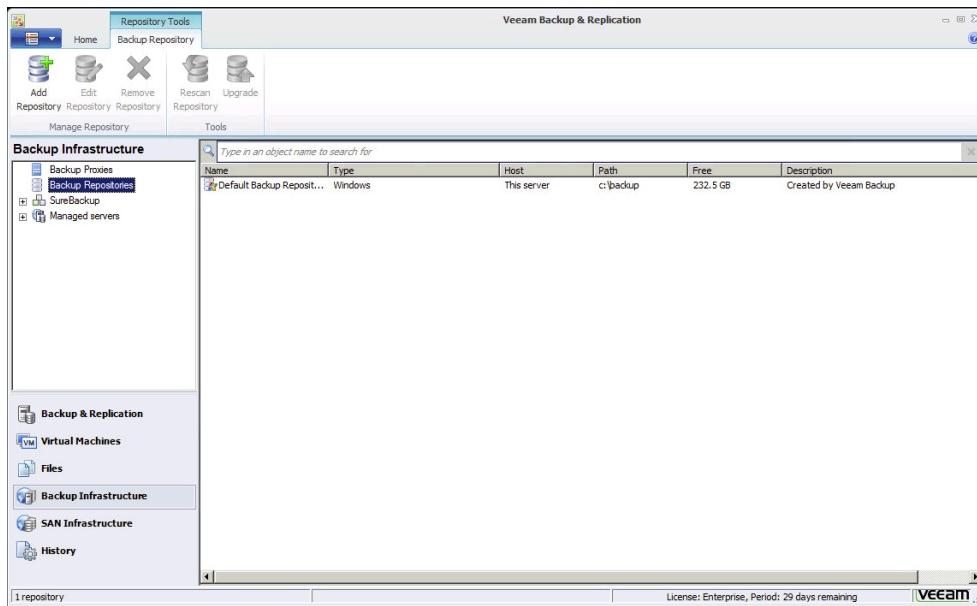
STEP 1
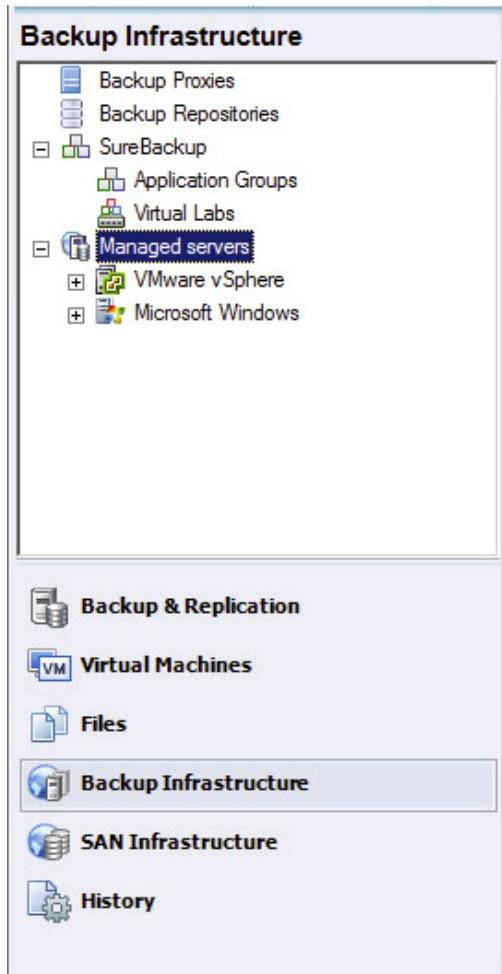
Launch Veeam Backup & Replication. Navigate to **Backup Infrastructure** along the left-side navigation panel. Then click on **Backup Repositories**.

STEP 2
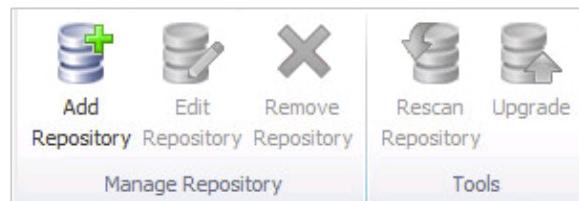
Click on **Add Repository** to add a new backup repository.

STEP 3

Assign a name to the new backup repository

STEP 4

Select the type of server.

We have chosen Microsoft Windows Server, as we'll be using the Drobo volume mapped to the Veeam server.

STEP 5
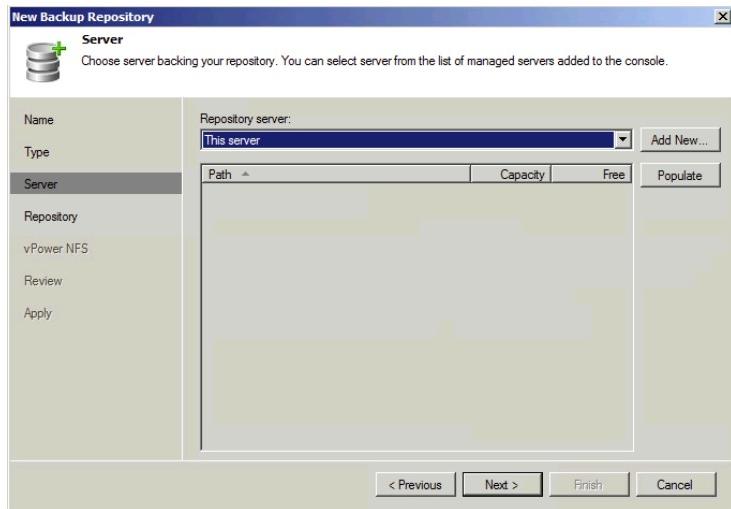
Select a Repository server if the storage is managed elsewhere. In this example, we'll be using the Veeam server.

Click Next to proceed.

STEP 6

Provide the path to the desired destination. We will choose the Drobo volume attached to the Veeam server.

STEP 7

Click Next once all configurations have been set.

Proceed to Finish, Veeam will run a series of tests before completion.

New Backup Repository

Review
Please review the settings, and click Next to continue.

Name
Type
Server
Repository
vPower NFS
Review
Apply

Backup repository properties:

Repository type:	**Windows Server**
Mount host:	**This server**
Account:	**Not set**
Backup folder:	**E:\Backups**
Write throughtput:	**Not limited**
Max parallel jobs:	**4**

The following components will be processed on server **This server**

Installer	**already exists**
vPower NFS	**already exists**

☐ Import existing backups automatically
  ☐ Import guest file system index

< Previous   Next >   Finish   Cancel

New Backup Repository

Apply
Please wait while backup repository is created and saved in configuration. This may take a few minutes...

Name
Type
Server
Repository
vPower NFS
Review
Apply

Log:

Message	Duration
✔ Creating repository folder	
✔ Registering client WIN-QPHT9RSR2C4 for package vPower NFS	
✔ All required packages have been successfully installed	
✔ Discovering installed packages	
✔ Detecting server configuration	
✔ Reconfiguring vPower NFS service	
✔ Creating configuration database records for installed packages	
✔ Creating database records for repository	
✔ Backup repository has been added successfully	

< Previous   Next >   **Finish**   Cancel

Creating a New Veeam Backup Job

STEP 1

Click **Backup Job** to create a new backup job.

STEP 2

Specify a name for the backup job

STEP 3

Click Add to select the VMs to be backed up.

STEP 4

Change the Backup Repository to the volume created on the Drobo.

STEP 5 (optional)
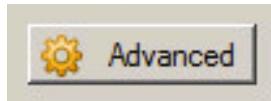
Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other options.

STEP 6
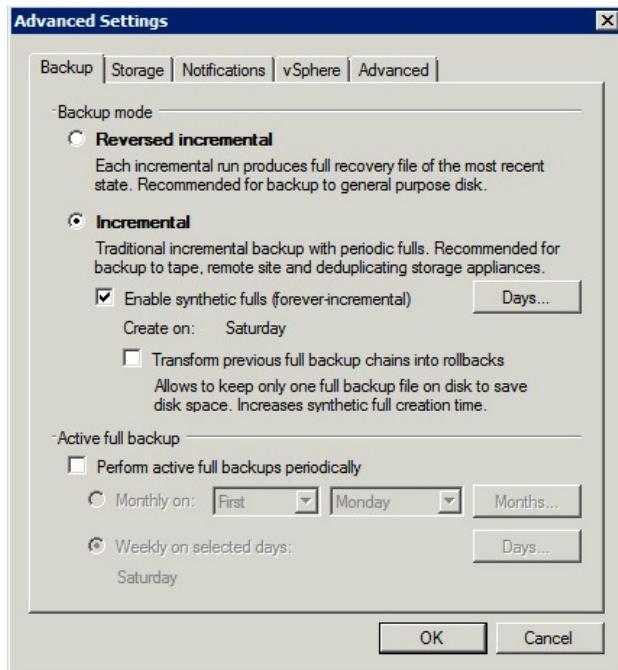
Select the **Incremental** backup mode.

In addition to incremental backups, active full backups should be performed either weekly or monthly. Select the option that works best in your environment.

STEP 7
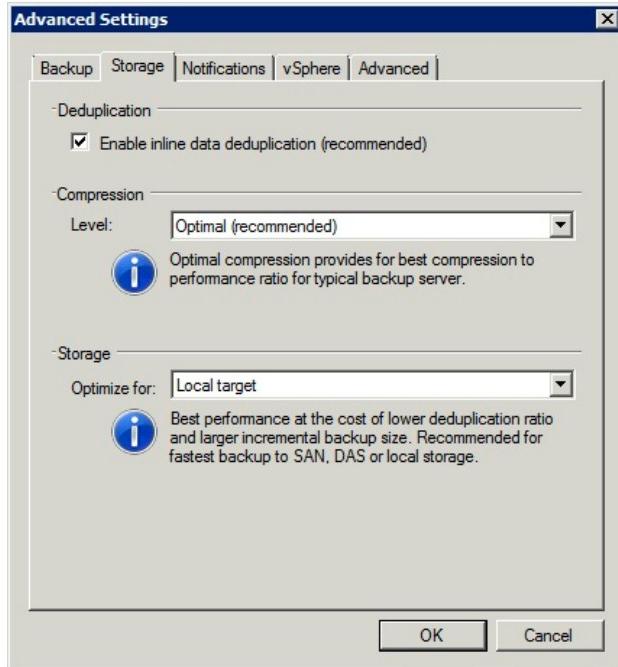
Click the **Storage** tab.

If you wish, enable "Inline data deduplication." Make sure that compression is set to **Optimal** and that it is optimized for **Local target**.

STEP 8
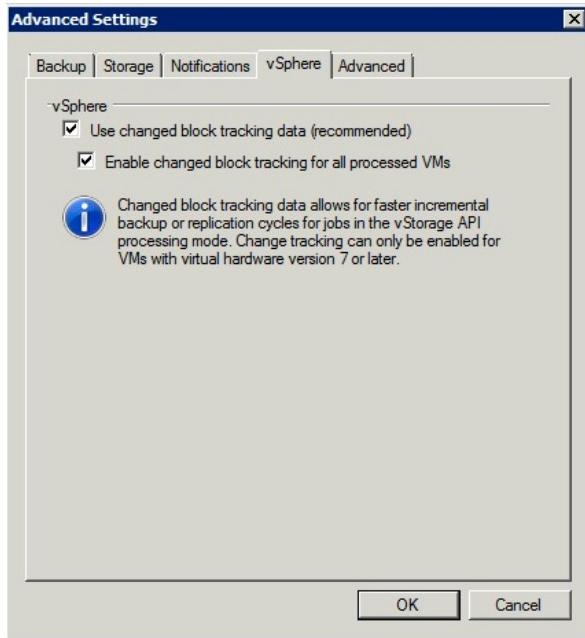
Click the **vSphere** tab and select "Use changed block tracking data."

STEP 9
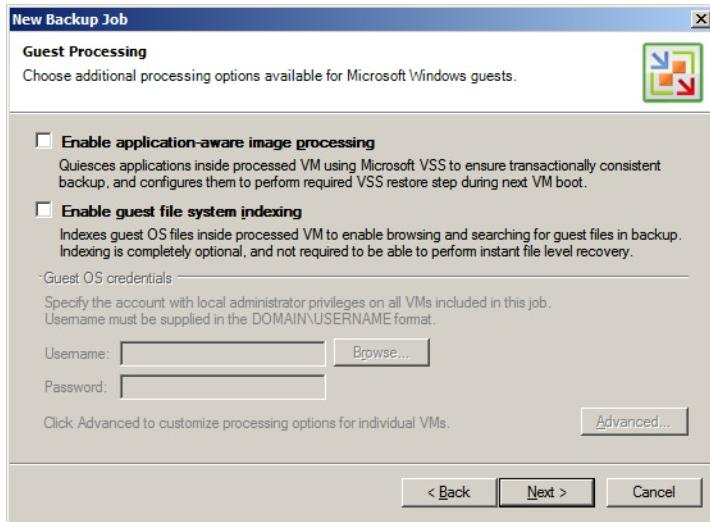
Choose additional options for Windows guests.

If you enable either of the additional options, provide a local administrator login.

For more information on application processing and Volume Shadow Copy Services, refer to Veeams Backup & Replication User Guide

STEP 10

Specify scheduling options.
Click Create then Finish to complete the Backup Job wizard.
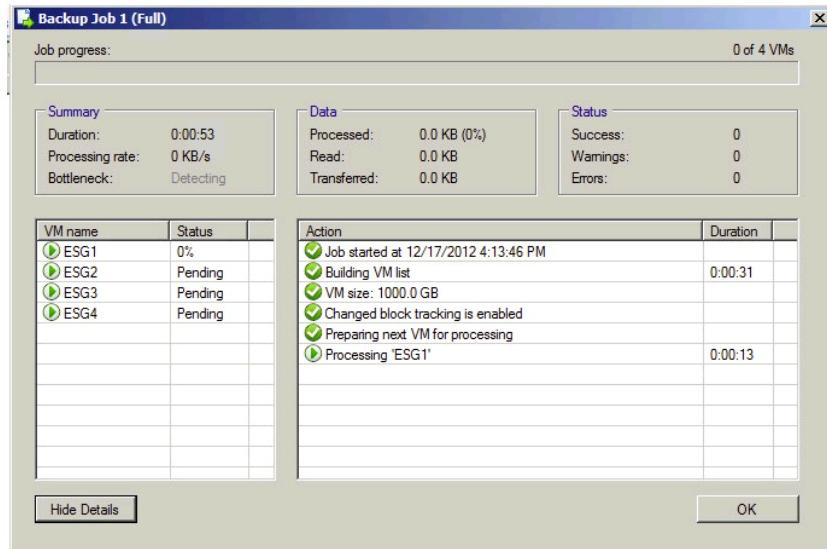
This is an example of real-time statistics for a backup job in progress.

Restoring Virtual Machines with Veeam Backup

STEP 1

Select the **Restore from Backup** option in the Veeam main console. A wizard guides you through the configuration.

In this example "Instant VM recovery" was selected as a restore point.

STEP 2

Chose the VM you want to restore.

STEP 3
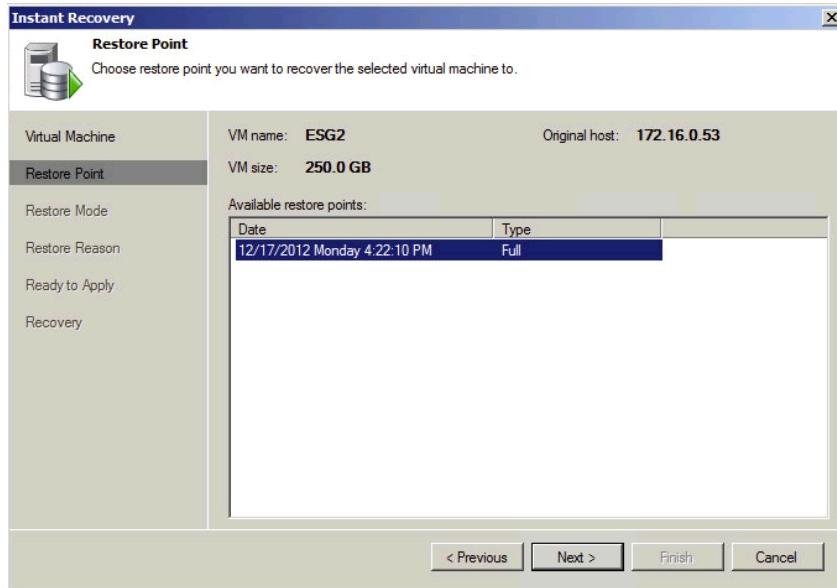
Choose a restore point.

STEP 4
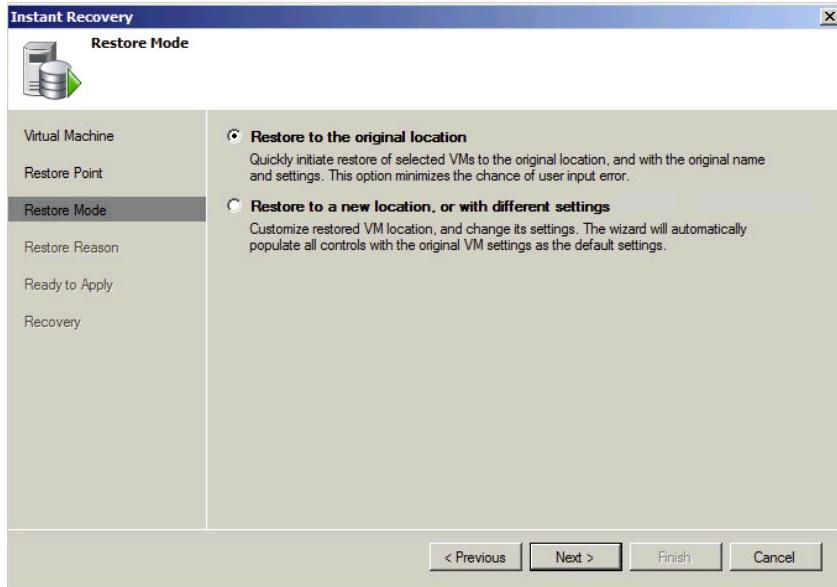
Choose the destination to restore the VM to.

STEP 5

Populate the next field with restore information for logging purposes.

Instant Recovery

Restore Reason
Provide the reason for performing this restore. This information will be saved in the restore sessions history for later reference.

Virtual Machine

Restore Point

Restore Mode

Restore Reason

Ready to Apply

Recovery

Restore reason:

Testing Veeam with Drobo Volume

| < Previous | Next > | Finish | Cancel |

STEP 6

Confirm all settings before proceeding.

Instant Recovery

Ready to Apply
Please review the provided settings.

Virtual Machine

Restore Point

Restore Mode

Restore Reason

Ready to Apply

Recovery

Instant recovery settings:

VM: ESG2, backed up 12/17/2012 4:22:10 PM.
Host: 172.16.0.221
Datastore: Disabled
New VM name: ESG2

After you click Next, the selected VM will be instantly recovered into your production environment. To finalize the recovery, use Storage VMotion to move running VM to the production storage. Alternatively, you can perform cold VM migration during your next maintenance window.

If you are performing manual recovery testing, remember to change VM network to non-production before powering on the VM.

☐ Connect VM to network
☐ Power on VM automatically

| < Previous | Next > | Finish | Cancel |

STEP 7


Confirm all settings before proceeding.

STEP 8

The following screen is an example of the recovery job.

VeeamZIP

VeeamZIP is similar to full VM backup. The VeeamZIP job always produces a full backup file (.vbk) that acts as an independent restore point. You can store the backup file to a backup repository, to a local folder on the Veeam Backup server, or to a network share. When you perform backup with VeeamZIP, you do not have to configure a backup job and schedule it. Instead, you can start the backup process for selected VMs immediately.

STEP 1
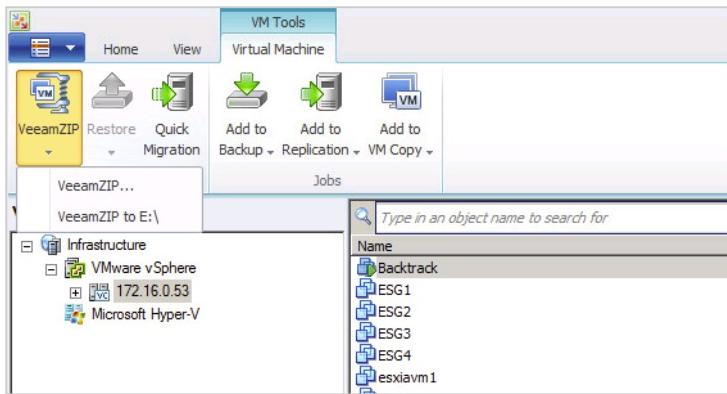
Select the desired VM for VeeamZIP.

STEP 2
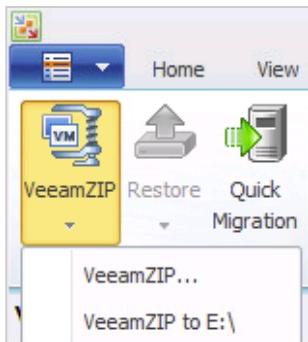
Click on VeeamZIP in the upper-left hand corner of the toolbar.

There will be two options for VeeamZIP operation.

STEP 3

Selecting **VeeamZIP…** will show advanced backup destination settings, either to the default backup repository or to a different location.

Selecting **VeeamZIP to (backup repository)** will begin the backup to the default repository.